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# Better Crops with PLANT FOOD

The Whole Truth—Not Selected Truth

R. H. STINCHFIELD, *Managing Editor* SID NOBLE, *Editor*

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VOLUME XIX NUMBER EIGHT

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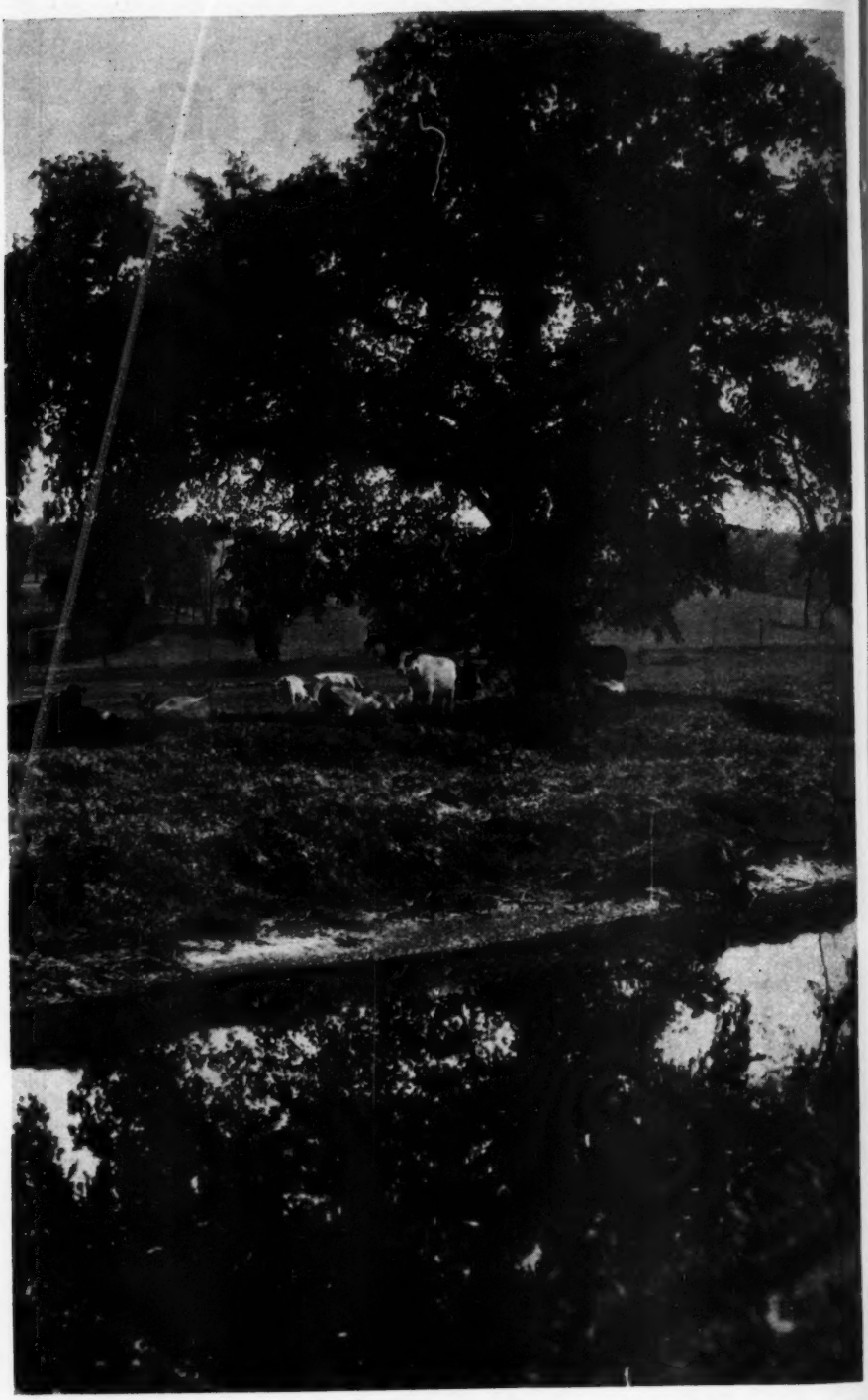

A BOVINE'S SUMMER PARADISE—GOOD PASTURE, GOOD WATER, AND SHADE.

Better Crops with PLANT FOOD

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VOL. XIX NEW YORK, JUNE-JULY, 1934 No. 8

# More About Less Milk

By Jeff McDermid

THE title for this discussion bothers me. I might have used Dam(n) the Lactic Flood or Less about More Milk, but perhaps one shot is as good as another on such a moot question. It concerns a basic agricultural commodity which refused to be budged. Our personal experiences in that recent campaign indicate that the milky way, as science avers, consists of something pretty nebulous.

If the recent plebiscite among our dairymen could have agreed on some reduction program which they could adopt free for nothing, America could have supplied enough bologna sausage and cow-hide boots to equip a huge army, and there would have been little left on the Swiss cheese counter but holes and a smell.

To begin with, like the economists do, the dairy business is different, difficult, and diffident. For one thing, the surplus is like a horse-fly or a mosquito—you hear the blamed thing buzzing around all the time, and it squats down and stings you impu-

dently; yet you are always too slow to swat it.

The milk surplus is always the fault of the "udder" fellow! Dairying is peculiar that way. A surplus is regarded with as much self-righteous horror as bad breath or dandruff, but the other producer is the one who spreads the contagion—never yourself. It's illegal to smash his stanchions or put arsenic in his bran mash, except perhaps during a "yeoman holiday" while the Governor is on a vacation in his storm cellar. And it is no good to use missionary tactics when the extension service has worked 27 years to get only three per cent of the confounded cows weeded out on a board bill complaint. At this writing no relief is in sight to cure the milk surplus by removing the pumps and windmills either.

THE dairy industry is so complicated with milkmen and middlemen, spokesmen and hoaxmen, sentiment and sediment, silage and verbage, that no man knoweth where fact leaves off and conjecture starts.

When anybody suggests a hand-out bonus at no obligation, there are 15 million dairymen with 8½ gallon cans ready to catch the strippings. This number includes several hundred thousand western lariat swingers who ordinarily milk their cows for money in strict and shameful secrecy, as well as the hill tribesmen who herd goats. But when somebody just drops a hint that there may be a general levy to sweeten the kitty, dairymen are as scarce as Dillinger.

The dairymen are considerate of the wheat and cotton farmers who are now under obligation by contract as to disposition of acreage. The dairymen have not hesitated to point out that the Government should not permit wheat and cotton farmers to "go to seed" or "go to grass." Next to avoiding a contract yourself, it is a good idea to keep an eye on the ones which the other man signs.

Those of us who found time to attend any of the regional meetings called to discuss the milk muddle came away convinced that those who sigh for the good old days of revival meetings garnished with brimstone, or the political rallies spattered with insulting allegory, need not mourn a minute for the decadence of spontaneous Americanism.

The gospel according to the Bureau of Agricultural Economics and the testimony grounded on the Year Book, reinforced with the apostles' creed of the Market News service, had to stand agnostical assaults and all manner of inferences from infidels.

The debates of such erstwhile successful public entertainers as Webster and Hayne, Bryan and Darrow, or Corbett and Fitzsimmons, were no more thoroughly prepared or more jubilantly applauded. The "professors" labored under the severe handicaps of official decorum, impartial analysis, statistical clutter, and some charts that the fellows on the back seats didn't want to see if they could have done so.

The opposing non-believers, nonconformists and standpatters were able, in their turn, to throw off their vests, snap their galluses, brandish their dry-year milk sheets, and sweat lactic acid in defense of the brindle cow, Vitamin D, and the thirteen original colonies.

BY the same token, the conflabs were much like Paddy McGuire's wake, with the "poor ould corpse" representing the real dirt dairyman, all silent and serene. The story goes that Paddy, poor b'ye, was deceased from a lingering disease, and the funeral orators got to wrangling over whether too much whisky or not enough whisky was the cause of it. " 'Twas too much poteen taken inwardly too frequently," shouted the dry orator. "Ye're a talented prevaricator, my frind," replied the wet waker, tipping up the pint for the last gurgle, "He died because

of a constant lack of Donegal dew!" After railing at each other thus for twenty minutes, the wakers were astonished to see Paddy (Himself) McGuire rise up in his coffin and grab for the bottle, exclaiming: "You're both right! I've nivver had too much and I've nivver had enough. Give me one more swig and spit on the shovels!"

And so it was with the quiet dairyman standing on the sidelines during the pow-wows of April. He was short

of shorts, and also of bran, distillers' grains, hominy, molasses feed, rain, and money; in short, short of everything except cows; and long on mortgages, chattels, rats, organizations, kids, and advice. When they told him he was mighty important because his income represented a quarter of the farm total, he could not drum up much admiration for the other three-quarters. Others said he should be left alone because he could starve himself out of it in no time.

Can we hold back our cows as well as make them give down? This was another major problem. One could feed hydrolyzed sawdust, as once attempted at the Wisconsin University by the experiment staff, but that would be far more suitable for adoption by the canny wooden nutmeg dairymen of New England. One might play selections from Gershwin or the Flying Trapeze to an audience of bovines, beating time meanwhile on their thin ribs with hay forks. Reduction might also be accomplished by hiring Scotch herdsmen or removing the muzzles from self-sucking cows. Sarcastic ones thought that it could all be solved by letting the county agents and home economics girls balance the cattle rations. Resort to bimetalism or the rubber dollar was also advocated in some circles.

If we can't hold them back, may we not get good and rid of them? This was even worse to ponder upon. The stockyards were full already with mavericks from no man's land, and the stomachs of the unemployed had begun to distend because they were expected to become garbage cans for every industry forced on a domestic basis. Killing some folks with kindness in order to make other folks pay double for butter seemed lopsided. One scheme involved loading unwanted foster mothers of the h. r. onto trucks and taking them elsewhere. Still another plan in lieu of the cow transfer idea was to move all the good dairymen south and give them the hookworm, and let the southern amateurs occupy the northern farms and milk without mittens.

The fellows who used to whisper cautiously about the relation between contagious abortion and undulant fever came right out loud and voted to create a national fund to remove aborters on the one hand and tell the public at the same time how much better the milk ought to be for mothers and others. The slogan "more and better cows" was changed by deleting "and."

Every industry, dairying no exception, must have its saints and its dragons, to be decked out in all the panoply of mythological regalia and trotted out on the stage for alternate admiration and abhorrence. The gallery gods demand it.

Weeks before the dairy jousts,

giants of the churn and vat conducted sundry rehearsals in the grand lodge rooms so that there might be no bungling of the ancient ritual. Indeed, wherever any milk conventions assemble, be it in meadow, opry house, or village green, the climax of the program rests with the Punch and Judy show of dairydom.

The hero of the piece is always "Ad" whose powerful voice, majestic appeal, and wide acquaintance in all walks of life are the imagined hope of the dairymen to save them from disaster and gain them new trade. In the mimicry of the spotlight Ad languishes, to be sure, and is rather scrawny and underfed, but whenever he appears the palates of the people taste ripe limburger in fond anticipation, and the hypnotized producer digs deep for another nickel.

"IF every inhabitant of the country each day ate one ounce of smear-case, drank two pints of bulgaricus, used butter for face cream and skim-milk powder for foot ease, the nation would never have another depression and we could forget such troubles as Huey Long and the war debts."

On the q. t. they really don't believe just that—it's only part of the pageant to keep the cows contented. While tiny Ad, the milker's marionette, plays his dumb show in the shadow box, the *real* Ad, supported well by the limousine lads, holds his fat sides with risibility. "To think I ever looked like that," says he to his bosses, between guffaws, and the big butter-and-egg men who have dropped in to enjoy the milk route mummery also snicker and relax. The farmer as an advertiser is too cute for words.

Ods bodkins! Couch your lances! Drop the drawbridge! Prepare the guillotine! For behold the show is never complete without the villain in his vileness.

He cometh, decked in greasy paraffin and the duds of deceit. Behold Ole, malignant enemy of the orphan calf, thief of the quick lunch counter, destroyer of the bull's pedigree, and the principal obstacle to 60-cent butter, good roads, a balanced budget, industrious hired men, and universal longevity.

YET somehow, the cottonseed boys and the beef feeders don't get as much kick out of this act as the teat yankers, although everybody would really be disappointed were Ole accidentally killed for good. You know how it was when you were a kid—a good scrap developed the stamina and a bunch of sissies without competition are headed for the seminary.

When the show is over and the lights go out, little Ad, the Don Quixote of the comedy, and flabby Ole the bandit, are both shoved down into the old bag of tricks and headed for the next one-night stand. The rank and file return to their chores well satisfied that justice will prevail, and the barons of the butter tubs continue to separate and skim.

Optimism run amuck and pessimism gone crazy! Which is simply another reminder that in the milk muddle we see the counterpart of bewildered America in all her delightful inconsistency.

Getting back to the surplus, who is there more entitled to sing a parody on the "purple cow" than the owner of the herd:

I never saw a surplus,
I never hope to see one;
But lest you make an awful fuss,
I'd rather see than be one.

The surplus in dairying is either taken *from* the book of nature by rains or put *into* the producer's book by distributors. It comes and goes amazingly. In one western city in a period of 15 days a 40 per cent surplus formerly charged to the farmers disappeared by a little "legerdemain." It came from more accurate bookkeeping installed by Uncle Samuel.

The most expensive surplus we have doesn't appear as such. It shows up

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# How They Become Corn Champions

*By M. O. Pence*

Purdue Agricultural Extension Department

SO many Indiana corn growers have produced official yields of 100 or more bushels of corn per acre that it seems almost commonplace to review their achievements. This fact is born out by the records of the Five-Acre Corn Contest started on a State-wide basis in 1914 by the Indiana Corn Growers' Association in cooperation with the Purdue University Agricultural Extension Department.

During the 20 years just finished, 10,859 corn growers, an average of more than 500 each year, have finished the project and had their yields checked by the official judges. The records show that during this time 921 have produced yields of 100 bushels or more corn per acre, for which achievement the Association awards a gold medal.

A. C. Brown, Indiana's 1933 Corn King

Since 1917 when silver medals have been awarded for yields of 85 to 100 bushels per acre, 2,208 corn growers have qualified; and since 1918 when bronze medals have been awarded for yields of 75 to 85 bushels, 2,296 have finished in this group. The past year was considered an unfavorable year for corn throughout most of the State, and yet 68 per cent of the contestants produced yields of 75 bushels or more per acre.

That farmers are profiting by their experience as well as by the experience

of others in this contest is shown by comparing the number who were able to produce 100 bushels of corn per acre during the first five years as compared to the last five years. In making this comparison I am sure the weather records and the average yield of the State will show that at least three of the past five years were far below the average in corn production.

During the first five-year period, out of 1,631 completing, only one corn grower in fifty produced 100 bushels per acre, while during the past five years out of 2,952 completing, one corn grower in nine produced a 100-bushel yield. These results may be considered as evidence of the mass effect of the experiences and demonstrations of the better growers on other good corn growers. The effects of this contest are bound to be wide spread as corn growers from 50 to 70 of the 92 counties take part each year.

### *Unusual Records*

Each year brings forth some unusual achievement or record. Herman Pankop of DeKalb county made an all-time State record as well as a national record for 1932 by producing 165.6 bushels of corn per acre. Last year 1933, another unusual record was made by A. C. Brown of Ripley county who produced 141.3 bushels of corn per acre. Although this is not a national record, I feel quite sure it has never been exceeded on a soil type such as Mr. Brown operates. His soil is Clermont silt loam, locally known as "crawfish" or "slash" land.

Thousands of acres of this type of soil are abandoned in the territory surrounding Brown's farm, because the yields are too low and the management of this soil type is too difficult. This land lies very flat and because of its high silt content has very poor natural drainage. The soil is cold and wet, and without underdrainage cannot be plowed until late in the spring, often too late to plant corn. In addition to these handicaps it is quite acid as well as deficient in all three essential plant foods. Could any soil condition offer more discouragement to a corn grower?

For many years Mr. Brown was a rural mail carrier. As he traveled his route from farm to farm, he was a close observer of the best farm practices of his patrons. From them he learned many practical points about handling his soil. About the time he left the mail service to give full attention to his farm, a soil experiment field was established on this soil type, by Purdue University in Jennings, an adjoining county. In his visits to this field at the semi-annual field meetings, he learned about the plant-food deficiencies of this particular soil.

### *Begins With Soil Fertility*

He noted first of all, that it must be limed in order to grow the clovers. He proceeded to lime his farm, and on the field where his record was made he has applied seven tons of ground limestone per acre. He has grown several excellent clover crops on this land. He learned, too, that this land responded to underdrainage, but this investment he could not afford. Consequently he proceeded to lay out the next best thing, small lands with dead furrows in between to carry off the excess surface moisture. He noted the great response that this soil made to the three plant foods, once it was limed and drained. Through his clover crops he added most of the nitrogen and humus needed and through the purchase of phosphate and potash he took care of the other plant foods. It should be added, of course, that he has used all crop residues either as bedding or for direct return to the soil, and has saved and applied all manure produced on the farm.

On his record corn crop Mr. Brown applied 100 pounds of 0-20-20 drilled in the row, and before planting 225 pounds of the same fertilizer were applied broadcast and worked in. Since he does not have much invested in this land, he can afford to invest fair sums

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# Old Soils *Need* Potash

*By R. E. Stephenson*

Professor of Soils, Oregon State Agricultural College

LOSS of humus is a noticeable change that occurs when fertile virgin soils are placed under cultivation. The extent of the loss depends upon the system of farming, but usually amounts to 25 or 30 per cent in as many years. Crop yields drop in like proportion. The reduction in humus and crop yields continues under poor farming for perhaps half a century, until equilibrium between losses and gains is established at a new base level so low that crop production is no longer profitable.

Along with the disappearance of humus occurs a loss of bases, particularly calcium and potassium. The soil becomes acid. Data from Missouri show that one-third the readily available bases disappeared in the same period that reduced the humus level by 38 per cent. Production dropped 40 per cent as a result.

### *The Use of Lime*

Such soils are described as "worn out." A frequent practice for renewing worn soils includes the use of lime to correct acidity, superphosphate, rotation, and the growing of legumes. The importance of potassium renewal sometimes has been overlooked. Perhaps stable manure is depended upon for potash. Manure carries considerable potash, but lack of manure renders this source ineffective. The more exhausted soils are least likely to receive a sufficient quantity of manure. Many old fields never receive any. The manure program has been delayed too long when the soil is already exhausted.

The importance of potassium on worn soils has been demonstrated in fertilizer trials in old pasture fields. Applications of potash and phosphate renew "run-out" pastures effectively. Legumes come more and more abundantly following these treatments. Lime in small amounts with the fertilizer usually proves helpful.

### *Plants Show Needs for Potash*

That liming sometimes receives attention to the exclusion of potash renewal is due in part to the fact that high acidity results in low availability of nutrients in general. Phosphates become almost entirely unavailable in very acid soils. High acidity brings in soluble aluminum and other toxins very injurious to some crops. The use of lime corrects this condition, but does not restore the lost potash.

As the supply of available calcium is reduced by increased acidity, crops have greater need for potash. Reduced absorption of calcium causes increased absorption of potassium by crops. In old acid soils readily available potash becomes practically nonexistent. This may be indicated by various signs of malnutrition such as "die back," "leaf scorch," and "little leaf" in fruit trees. Farm crops, besides producing disappointing yields, become more susceptible to such in-

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# *The* Inquiring Mind *and the* Seeing Eye

*By Dr. A. S. Alexander*

University of Wisconsin

WISCONSIN reveres the memory of William Arnon Henry, founder of her Agricultural College and Experiment Station. A genial gentleman, loving with every animate fiber of his being the State and its farmers, he strenuously devoted 27 years of his life to their service and unselfishly sacrificed himself for their interests and welfare.

Visit the peerless campus of the University of Wisconsin and you will see on every hand lasting monuments to Dean Henry's vision, inspiration, and industry. There stands the great Agricultural Hall he longed for and at length was granted. Near-by is Hiram Smith Hall where, under his guidance, dairying was placed upon a scientific basis and fostered as an industry until it grew magnificent in proportions and importance. Past the noble portals of the central agricultural building runs beautiful Linden Drive, set out by the Dean, and branching at its eastern end into a shady avenue of evergreens.

On the north slope of Observatory Hill, stretching toward the blue waters of lovely Lake Mendota, you may see today a trial orchard planted by the late Professor E. S. Goff, the eminent horticulturist, at the behest of Henry; and on the lawn, near the Dairy Building, are flourishing the two memorial red oak trees planted one fine Arbor Day by Dean Henry and the late Dr. Stephen Moulton Babcock. Then, at the entrance to the roadways and parkways between Linden Drive and University Avenue, leading up to Agricultural Hall, imposingly rests a great banded gneiss bowlder bearing a tablet of bronze on which is inscribed: "The HENRY QUADRANGLE. In recognition of the pioneer services of Dean William Arnon Henry to the State and the Nation, from 1880 to 1907, this approach to the College of Agriculture has been designated by the Regents, The Henry Quadrangle."

### *Worked for Pavilion*

Walking west on Linden Drive to the University Farm, one comes to the immense Live Stock Pavilion, for the erection of which Dean Henry talked and worked for many years, deeming it of prime importance in rounding out the equipment of the College and Experiment Station. Many critics prophesied that the building would be a "white elephant," on account of its size and cost; but Dean Henry had planned wisely and well. The spacious arena of the Pavilion has proved not only necessary and perfectly adapted for livestock teaching and demonstration work, but has served on many notable occasions for the holding of commencement exercises, great conventions, important exhibitions, and even concerts by celebrated artists. It is but one of the great monuments to the memory of

the Dean, for many other fine buildings of the agricultural group were erected during his regime and the experimental farm and grounds also were developed and beautified under his competent direction.

Close to the Live Stock Pavilion still stands the modest frame structure in which the Dean began the work of the Agricultural Department, in 1880. This little building was the original farm house. Three rooms in it in 1881 were occupied by the Dean and his wife. The other rooms were used by the farm workmen. The "foundation

**William Arnon Henry**

equipment" of the Department consisted of a small walnut desk-table placed in the front room of the second story of the house along with two chairs, an inkstand, a little stationery and some record books. Later, four rooms used as student living quarters on the third floor of the south half of old South Hall, on University Hill, were vacated and utilized for the offices, library, and chemical laboratory of the Agricultural Department. In time, all of South Hall was granted for agricultural teaching and research purposes.

You may, today, see that old walnut table as a prized treasure in the great Agricultural Library which Dean Henry did so much to plan and equip. It served both as an office and classroom desk. Under a glass plate on its top there is a faded letter, written by Dean Henry which states: "The Agricultural Department of the University of Wisconsin, under my direction, was first housed in the University Farm House in 1880. I started the form of an office by purchasing the table for $2.50 and placing it in the front room, second story, of the farm house. This table may be regarded as the first and oldest piece of furniture belonging to the College of Agriculture."

### *Championed Book Learning*

Gradually, interest was aroused in the new project of agricultural education. At that early day, "book learning" was at a discount and farmers believed that practices considered proper by their fathers were good enough for them. The attempt to introduce better methods, based upon a scientific knowledge of agriculture, therefore met with opposition at first, and Dean Henry had to work at a disadvantage. Often he was misunderstood, often criticised, and sometimes disappointed; but ever he fought bravely on and in time came to see his work approved, himself applauded, and his teachings applied to practice.

In 1881 the State Legislature appropriated $4,000 for his use in experiments in the manufacture of sugar from amber cane, and the ensiling of fodder corn. That small fund gave him a start, and year by year more liberal allowances became available, and the work progressed. That with silage, or ensilage as it was called at first, was of greatest importance. Henry was a pioneer in experimental work on that subject. He built a

rather crude stone silo and filled it with immature green corn fodder. The silage made was somewhat acid, but cows consumed it with relish, and the fear expressed by critics that the fermented stuff would burn down the building, or poison the cattle if they ate it, was dispelled by the results obtained. Today, thousands of silos in Wisconsin and other States bear witness to the value of Dean Henry's initial efforts, and the silage produced from better ripened, cut, and stored corn fodder has become a staple and valuable feed for cattle, that nourishes instead of poisoning and does not loosen the cow's teeth, which opponents predicted would result from its use.

### *Made Himself a Leader*

Dr. E. A. Birge, President Emeritus of the University of Wisconsin, once said of Dean Henry's work: "He undertook the guidance of agriculture in Wisconsin at a critical time, both for the State and for science. The State had to abandon pioneer, exploitative farming, but could not see any new policy. The science of agriculture was not yet born; its powers were still latent. Not only must a new science be developed, but the farmers, a most conservative group, must adopt its findings as the means of their livelihood. Both theory and practice found their man in Dean Henry, and the man embodied the full measure of a great opportunity. He made himself a master and a leader in his own field of that science. From the beginning he sought out, for the department and college, men who would become leaders in the discovery and establishment of the basic principles of agriculture. Thus both he and the faculty built up their science."

William Arnon Henry was born in Norwalk, Ohio, June 16, 1850, the son of William and Martha Haines Condict Henry. He was reared on a farm and obtained his preliminary education in the district schools. Then he took a preparatory classical course in the Wesleyan University of Ohio. From 1871 to 1873, he was principal of the public schools of New Haven, Indiana, and from 1873 to 1876 principal of the public schools of Boulder, Colorado. In 1880 he obtained the B.S. degree in agriculture from Cornell University, New York, and on September 9, 1880, went to Wisconsin University as Professor of Botany and Agriculture. From 1883 to 1887 his title was Professor of Agriculture, and in 1887, he was made Director of the Experiment Station and served in that capacity and as Dean of the College of Agriculture until 1907, when he resigned on account of failing health and was made Emeritus Professor by the Regents.

In 1904, the honorary degree of Doctor of Agriculture was conferred upon him by the University of Illinois, and Doctor of Science by the University of Vermont. In 1907 the University of Michigan also honored him with the degree of Doctor of Science. During the summer of 1879, he was connected with Professor Riley on the U. S. Entomological Commission at Washington, D. C., and in the spring of 1880 was Instructor in Botany at Cornell University. In 1900 he was an agricultural delegate to the Paris, France, Exposition.

### *Retirement in California*

In July 1881, he was married to Clara Roxann Taylor, and they had one son, Arnon Taylor Henry, who graduated in agriculture at the University of Wisconsin, married Miss Jessie Stephens of Madison, and moved to Wallingford, Connecticut, where he now lives on a fine fruit farm with his family. After resigning from the University of Wisconsin, Dean Henry lived for a time in Connecticut, then bought property at Sarasota, Florida, and after a few years moved to San Diego, California, where he lived with his sister, found consolation in the Church, and passed away November 25, 1932, at the age of 82 years. Mrs.

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Reaping of the first rye in the Wieringermeer. (*Photo copyright: K. Maaskant, Wieringen.*)

# A Sea Bottom Produces

DIGGING drainage ditches equal to a total length of about 25,000 miles is a big job anywhere. Yet it is what the people of the Netherlands have undertaken as one of the things necessary in enabling some 300,000 people to ultimately find the means to a good livelihood in farming the land that was once the bottom of the Zuider Zee. By enclosing and partially reclaiming the Zuider Zee, the area of habitable Holland will be increased by 550,000 acres, or an increase of 10 per cent in the cultivated area of the country.

As pointed out by Edgar Brown in a very interesting and illustrated pamphlet:* "Holland is largely overpopulated and since industrialization is evidently not the remedy in a land where nearly all the raw materials must be imported and emigration is, at any rate for the present, of small avail, most good may be looked for in the increase of agricultural production, chiefly by extending the cultivated area."

While the reclamation of the Zuider Zee as agricultural land, estimated to cost over $225,000,000, is modern in all its vast engineering and agricultural phases, the idea has been considered for centuries, for it was not a question of taking back what the sea has always held. The origin of the Zuider Zee was twofold. In Roman times great lakes existed. By 1500 the land between the lakes had been covered by salt water. Thus was formed the Zuider Zee.

Many years were given to thinking out definite plans for its reclamation before it was decided to make the large expenditures involved. In 1918 a bill was passed to enclose and in part reclaim the area. In 1920 a sill in the channels of the Amsteldiep, lying between the coast of North Holland and the Island of Wieringen, was the basis of the first operations. In five years an enclosing dam across the whole Amsteldiep had been completed

and the reclamation of the first area was in sight.

Wieringen ceased to be an island in 1925 when the dam 1½ miles long between it and the Peninsula of North Holland was completed. But some 24½ miles of open sea remained. From Wieringen the dam was continued to the Friesland coast, in all a distance of about 26 miles from Van Ewijeksluis on the coast of North Holland to Wieringen, and from there terminating near the village of Zurig.

In constructing the dam the engineering work proceeded from several centres until on May 28, 1932 the first of the three important channels was closed. One of the special difficulties in building the dam was the possibility of scouring the sea bottom by the increased velocity of the outflowing water as the dam was built and the openings narrowed. In fact, at one time scouring occurred to a depth of 90 feet, but by the aid of a veritable armada of material the dam was constructed and the closing of the last opening finally effected. The occasion was one of much rejoicing. Ships hooted their congratulations; speeches were made in the presence of high authorities; and well-deserved thanks were recorded to those who had directed and carried out this immense work of building the dam.

When the project is completed, the area enclosed by this great dam will consist of four immense polders and a fresh-water lake, the Usel Lake. The lake lies between the four polders, adjacent to each. Thus the water from each of the four drained polders can be pumped into the lake. By means of steel sluice gates in the dam, which move up and down, the water from Lake Usel is then enabled to flow out to sea at low tide.

Besides providing a means of drainage, other advantages of the fresh-water Lake Usel are that it will provide good drinking water for cattle at all times and the dikes can be maintained at a smaller cost, since fresh-water dikes are less costly and troublesome than sea dikes. Finally the great dam between the lake and the sea will provide an excellent means of connecting North Holland and Friesland by a railway and roads. The value of Lake Usel as a fresh-water reservoir is put at well over $75,000,000.

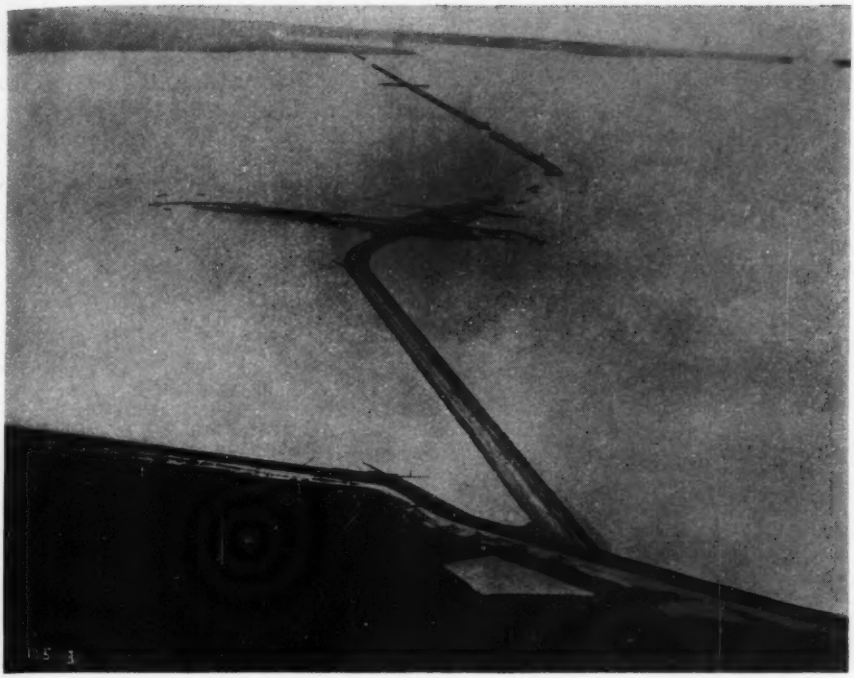
Having closed this area, there arose the problem of how to remove the salt from the soil in the new polders and make the land, for so long under the sea, fit for agricultural operations. For this purpose a small experimental polder of about 100 acres was made near the village of Andijk on the North Holland coast. The drainage and extraction of the salt was successful and crops were grown in 1930.

In the same year, the northwestern portion of the land (The Wieringermeerpolder) had been reclaimed and dried out and in that year was being plowed, cultivated, and reaped. This polder is 48,000 acres in extent and though the largest in the world, will be the smallest of the four polders.

In bringing the land into cultivation, it has been necessary to make detailed soil surveys. Various systems of drainage are being compared and salinity tests of the water are being made. Experiments with various kinds of fertilizers for the newly reclaimed land are also in progress. It is noted in the 1933 report that the experimental fields show satisfactory development and it was possible to record gratifying results of the various fertilizer treatments to clover for grass sowings.

The reclamation of the Zuider Zee is a captivating story. It reveals the sturdy qualities of the people of the Netherlands and its engineers responsible for the gigantic project and marks the successful termination of another episode in the age-long battle between Man and the sea.

* "The Story of the Zuider Zee Works"; "Fresh Fields and Polders New"; written by the Association "The Netherlands Abroad", published in cooperation with the official Tourist Information Office at Hague; and "The Enclosure and Partial Reclamation of the Zuider Zee", reports written in collaboration with the Ministry of the Waterstaat, editions 1930, 1931, 1932, and 1933. We are indebted to the above publications for the information contained in this article.

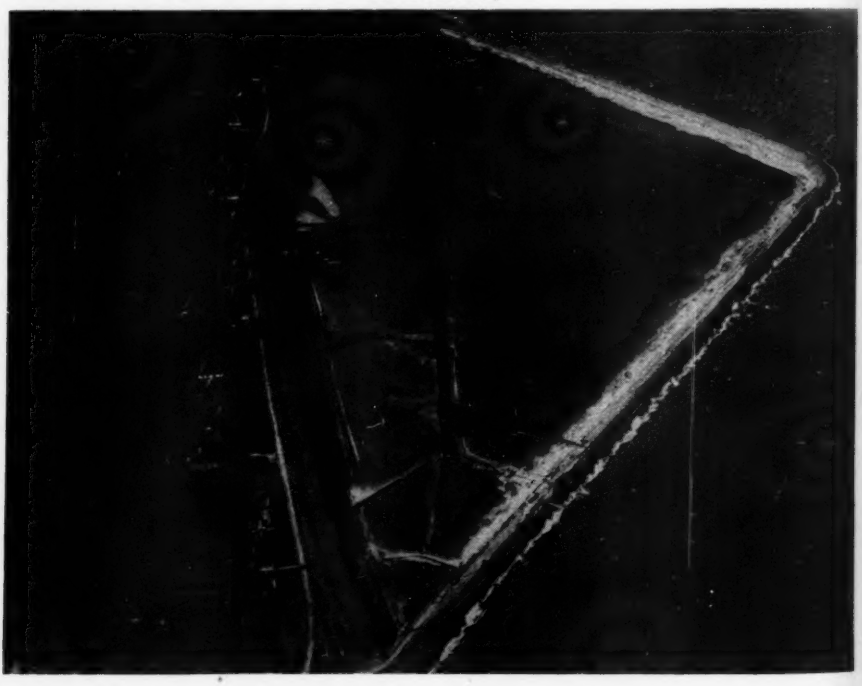


Above—A bird's-eye view of the dam from Friesland to North Holland. The Northsea, 37 miles away, can be seen in the far distance. *(Photo by K. L. M. Royal Dutch Airlines.)*

Below—The Vlieter gap on the day of closing. *(Photo by the Military Air Service "De Kooy.")*

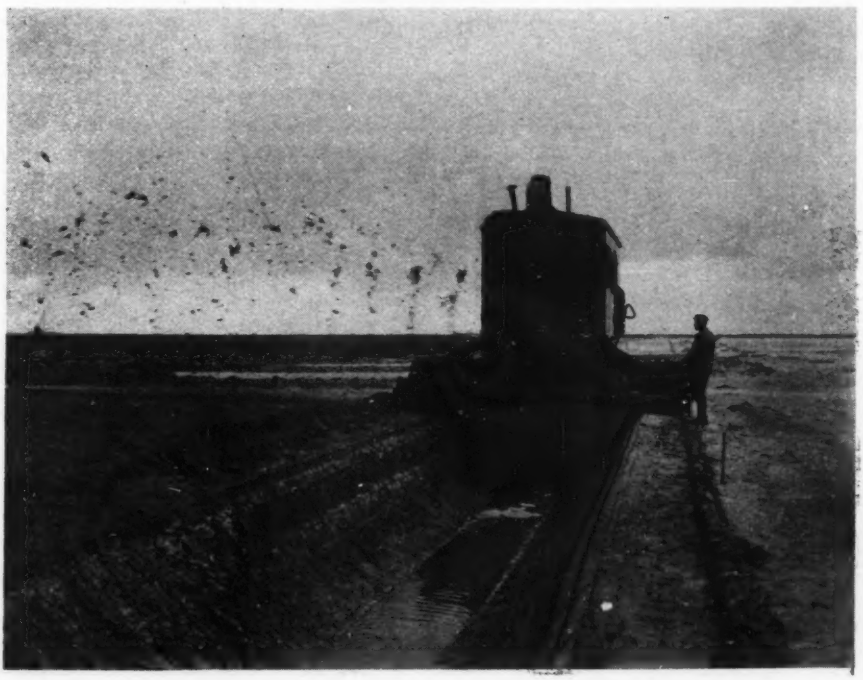
**Above—Discharging sluices at Kornwerderzand, seen from the northwest. In the rear the outport of the locks. (November 20, 1931.)** ***(Photo by K. L. M. Royal Dutch Airlines.)***

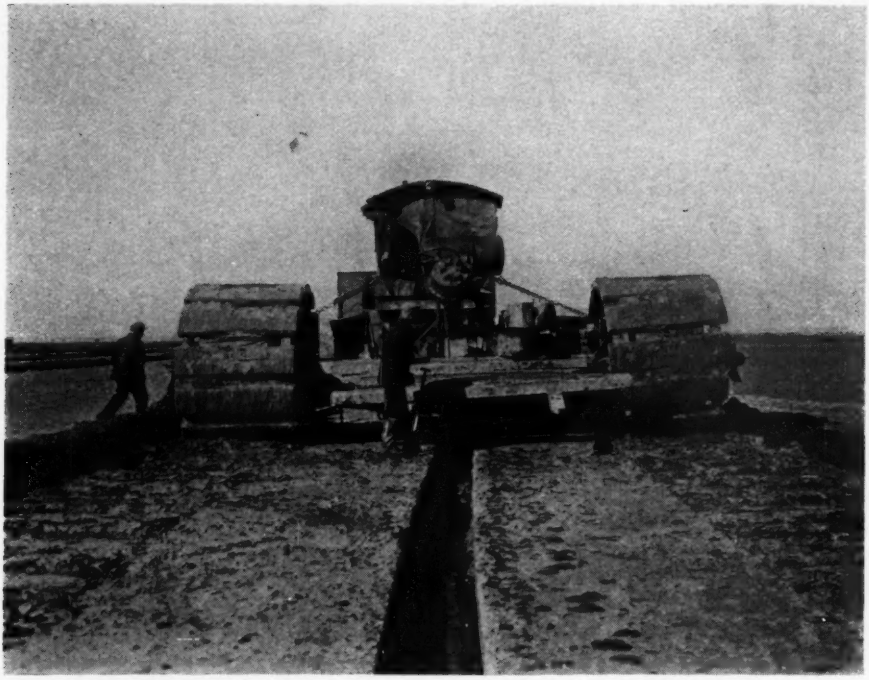
**Below—The Experimental Polder near Andijk, shortly after reclamation.** ***(Photo by K. L. M. Royal Dutch Airlines.)***



Above—The top of a dyke, ready for roads and rails. *(Photo copyright: K. Maaskant, Wieringen.)*

Below—Mechanical ditching, showing the excavated earth equally overspread. *(Photo copyright: K. Maaskant, Wieringen.)*





Above—Clay grubbing machine, lifting clay from the sub-soil of sandbank to the surface, for stemming drifting of the soil. *(Photo copyright: K. Maaskant, Wieringen.)*

Below—The Andijk Polder in 1931, showing sheaves of rye on the sky-line. *(Photo copyright: K. Maaskant, Wieringen.)*

# The Editors Talk

## The Industry Mind

Agriculture is facing the problem of becoming industry-minded instead of being individually minded. More and more is it necessary for the farmer to act as much in accordance with the wishes of his neighbors as in accordance with his own wishes. Especially is this so in the problems of the sale and distribution of his products. Would he obtain a better price for his potatoes, he must think of his neighbor as well as himself. Hence the farmer is finding it necessary to shift to a basis of being industry-minded.

Industries and services dealing with the farmer are facing the same problem—the necessity of shifting from being company-minded to being industry-minded.

The kinds and types of problems facing the farmer in different agricultural sections, as the cotton, potato, dairy, and wheat sections, are different. The kinds of problems facing industries serving agriculture are again different. But the principle is the same, i.e., individuals and groups are finding it necessary to see their own problems in relation to the larger industry problem and to adjust their thinking and doing in accordance with the larger sphere of activity.

Naturally many find it hard to make this shift. Long-established privileges and practices, sacred to the heart of the individual or the group, die hard. New confidences have to be nursed and new and larger view-points developed. Leaders in the agricultural field today are working as never before to reconcile conflicting and possibly stubborn views for the good of industry as a whole. Discouragement and failure exist alongside success and satisfaction.

In many minds the question looms—when does cooperation for the good of the industry leave off and regimentation and loss of individual liberty begin?

But whatever the right or wrong of extreme developments in industrial and agricultural unity, economic and social forces pressing hard in the world today indicate that a definite degree of industry-mindedness is necessary to the individual or group that would survive with any measure of success or contribute anything to the social welfare of this generation.

## Using the Short Cut

The use of short chemical methods for determining available nutrients is arousing increasing interest, since this offers an important means of improving the efficiency and economy of crop production. The chemical side of the testing methods has been developed more or less satisfactorily, but much work is needed on the correlation of the results with field trials and the interpretation of the tests in terms of fertilizer recommendations.

A valuable contribution to this phase of the work has been made by A. L. Prince and A. W. Blair of the New Jersey Agricultural Experiment Station

(Circular 292, "The Bray Method for Available Potassium Applied to Soils of Known Potassium Treatment"). The authors have utilized some of their soils which had been treated over a period of years with varying amounts of potash fertilizers. These soils were tested for their available potash content by the Bray method, and the results were compared with yield and growth records.

From these data it is concluded that the Bray method gives an indication of the readily available potash present in the soils tested. However, the authors point out that experience is needed in interpreting the results. This publication will aid in arriving at a practical estimation of the fertilizer needs of soils on the basis of short chemical tests.

## Canadian Birthdays

The year 1934 is one of several notable anniversaries in Canada. It is the 400th anniversary of the landing in Canada of Jacques Cartier, who landed at Gaspe in July 1534 and took possession of the country for France. The city of Three Rivers, Quebec, is celebrating the 300th anniversary of its founding by Sieur de Laviolette. The 150th anniversary of the founding of New Brunswick as a separate province also is to be celebrated.

Another 150th anniversary which is to be appropriately commemorated is that of the settling in sections of what are now the Provinces of Quebec and Ontario of the United Empire Loyalists. A notable anniversary is the centennial of the city of Toronto, the second largest city in Canada, popularly known as the "Queen City." This celebration began on May 24 and will extend until the close of the Royal Winter Fair in November.

We extend our most cordial good wishes to everyone participating in these historic events.

## Teaching by Doing

Out of an emergency in Texas 30 years ago, grew the cooperative extension forces that now cover approximately 2,750 of the 2,900 agricultural counties of the United States. These agents form a coordinated system for carrying the results—teaching by doing—of research work into the farm home and for modifying farm practices.

As stated recently by former Congressman A. F. Lever, co-author of the Smith-Lever Act, in summarizing two decades of the work of County Extension Agents, "They have been the spearhead of any difficult rural situation during these 20 years."

C. W. Warburton, Director of Extension Work, in reviewing the activities of the extension forces, said in part, "The farm problems presented by droughts, floods, hurricanes, insect invasions, and falling commodity prices have engaged the attention of the extension workers. When an occasion arises the extension forces adjust their programs to meet the emergency."

Especially gratifying is one outstanding result of extension work, i.e., the enrolled membership of nearly a million boys and girls in organization for the betterment of rural youth.

BETTER CROPS WITH PLANT FOOD is glad to be of service to the extension forces and wishes them success in the future as in the past.

# REVIEWS

This section contains a short review of some of the most practical and important bulletins, and lists all recent publications of the United States Department of Agriculture and the State Experiment Stations relating to Fertilizers, Soils, Crops, and Economics. A file of this department of BETTER CROPS WITH PLANT FOOD would provide a complete index covering all publications from these sources on the particular subjects named.

## Fertilizers

Tobacco growers will be interested in the results of "Fertilizer Tests with Tobacco," by J. E. McMurtrey, Jr., W. M. Lunn, and D. E. Brown (Maryland Agricultural Experiment Station Bulletin 358). The authors report and discuss a comprehensive series of experiments with numerous nitrogen and potash fertilizers in varying amounts. Consideration also is given to the role played by sulphates, chlorides, calcium, and magnesium in tobacco fertilization. A number of mineral nitrogen carriers were compared in their influence on yield and quality of tobacco, and material differences were found. The authors do not make specific recommendations as to which nitrogen carriers should be used, but the data indicate that a combination of carriers might be safest under most conditions. The amount of actual nitrogen which gave best results in this work was 30 to 40 pounds per acre. Insufficient nitrogen reduced yields, while excess nitrogen lowered the quality and increased susceptibility to disease.

The statement is made that "potash appears to be in some respects the most important component of the fertilizer mixtures as regards the quality of the leaf produced." Varying the amount of potash did not influence yield so much as quality. The best quality over a period of years was produced by 120 pounds per acre of actual potash or 240 pounds per acre of sulphate of potash. There was a noticeable shift in the amount of potash required to produce the highest total value per acre (yield and quality combined) as the experiment progressed. In the earlier years 120 pounds actual potash were sufficient to produce greatest value, but in the last several years 168 pounds per acre of actual potash gave best results. When the sulphate and muriate forms of potash were compared, the results on a quality and total value-per-acre basis greatly favored the sulphate form. The muriate form produced higher yields but lowered the quality so much as to reduce the acre value of the tobacco much below the acre value of tobacco produced by sulphate of potash.

The poorer results when using muriate of potash were due, of course, to the chlorides in this form of potash. The sulphates present in potash or nitrogen compounds did not have this adverse influence. In addition, it is stated that sulphates apparently tended to start plants growing earlier in the spring after transplanting.

Tests with calcium and magnesium indicate that the beneficial effects of these elements were due to their action as such, rather than to their influence on soil reaction.

The influence of several fertilizer materials on fire-holding capacity of the leaf was investigated. Chlorides either in nitrogen or potash compounds greatly decreased fire-holding capacity, while sulphates increased it.

A proper balance of nitrogen and

potash was found helpful in reducing leaf-spot diseases on tobacco. An excess of nitrogen with insufficient potash favored the development of these diseases. A proper balance of these nutrients also aided the plant in withstanding unfavorable weather conditions. The statement is made that . . . "a liberal potash application is the best type of storm insurance."

Summarizing their work, the authors make the following recommendation: "It seems that under the conditions of these tests a fertilizer mixture made up from the materials which have been shown to be satisfactory and used at 750 to 1,000 pounds per acre should contain 4 per cent nitrogen, 8 per cent phosphoric acid, and 12 per cent potash."

The bulletin contains good descriptions of deficiency symptoms of potash and magnesium and carefully differentiates between them. These are supplemented by numerous excellent photographic illustrations. This publication must be considered as a valuable addition to the literature of tobacco production.

*"Nitric Nitrogen in the Soils of the Arkansas Valley," Agr. Exp. Sta., Fort Collins, Colo., Tech. Bul. 6, Feb., 1934, Robert Gardner, Alvin Kezer, and J. C. Ward.*

*"Registration, Labeling, and Inspection of Commercial Fertilizers; 1933," Agr. Exp. Sta., Columbia, Mo., Bul. 333, Mar., 1934, W. S. Ritchie, L. D. Haigh, and E. W. Cowan.*

*"Analyses of Commercial Fertilizers and Ground Bone; Analyses of Agricultural Lime, 1933," Agr. Exp. Sta., New Brunswick, N. J., Bul. 561, Jan., 1934, Charles S. Cathcart.*

*"The Effect of Nitrogenous Fertilization on the Protein Content of Corn When Harvested for Silage," Agr. Exp. Sta., New Brunswick, N. J., Bul. 563, Feb., 1934, C. B. Bender and A. L. Prince.*

*"Fertilizer Recommendations for New York," Agr. Exp. Sta., Ithaca, N. Y., Cornell Ext. Bul. 281, Apr., 1934.*

*"Four Years of Commercial Fertilizers on Currants in the Hudson River Valley," Agr. Exp. Sta., Geneva, N. Y., Bul. 641, Jan., 1934, L. C. Anderson.*

*"Official Report on Feed Stuffs, Commercial Fertilizers and Agricultural Lime and Limestones for the Year 1933," Dept. of Agr., Columbus, Ohio.*

*"Analyses of Commercial Fertilizers," Agr. Exp. Sta., Clemson College, S. C., Bul. 291, Aug., 1933, R. N. Brackett and J. H. Woodward.*

*"Tabulated Analyses of Commercial Fertilizers," Dept. of Agr., Nashville, Tenn., Oct. 1, 1933, J. W. Sample.*

*"The Effect of Time and Rate of Application of Nitrate of Soda on the Yield of Cotton," Agr. Exp. Sta., College Station, Tex., Bul. 490, Mar., 1934, E. B. Reynolds, P. R. Johnson, and B. C. Langley.*

*"How Much Nitrogen Do Apple Trees Need?" Agr. Exp. Sta., Madison, Wis., Bul. 427, Mar., 1934, R. H. Roberts.*

## Soils

Two recent additions to the field of soil utilization are Bulletin 293 of the North Carolina Agricultural Experiment Station and Special Circular 44 of the Ohio Agricultural Experiment Station. The North Carolina Bulletin entitled, "Agricultural Classification and Evaluation of North Carolina Soils," by C. B. Williams, W. B. Cobb, and H. B. Mann, contains a full discussion of the soils of the State. The characteristics, crop adaptation, and the general fertilizer needs of the individual types of soils are given in tables and charts, making a handy and valuable reference book. "A Key to the Soils of Ohio," by G. W. Conrey and A. H. Paschall, in addition to covering the subject indicated by the title, gives tables on the adaptability of the various soil types to the important crops in Ohio.

An excellent publication on liming by A. R. Whitson and C. J. Chapman has just been issued by the Wisconsin Agricultural Experiment Station as Circular 266, "Liming Wisconsin Soils." Information on forms of liming materials, time and manner of application, and reasons for using lime are covered in this publication. The authors have wisely drawn attention to the fact that liming, while highly important in many farming systems, is not a cure-all for unproductivity of soils. Fertilizers and organic matter are equally important. This bulletin is written from a viewpoint broad enough to make it helpful to all interested in the problems of liming.

*"Experiments in the Use of Old Soil in Growing Carnations and Roses," Agr. Exp. Sta., Urbana, Ill., Bul. 400, Mar., 1934, F. F. Weinard and S. W. Decker.*

*"Optimum Soil-Nitrate Levels for Table Beets: Their Effect on Certain Nitrogen-Fractions in Juice Expressed from the Leaves," Agr. Exp. Sta., Kingston, R. I., Bul. 242, Jan., 1934, John B. Smith and Frank S Schlenker.*

*"The Effects of Mulched and Turned Rye in the Green and Mature Stages on the Liberation of Plant Nutrients from a Silt Loam Soil," Agr. Exp. Sta., Blacksburg, Va., Tech. Bul. 53, Feb., 1934, H. H. Hill.*

*"Soil Survey (Reconnaissance) of The Northern Plains of Montana," U. S. D. A., Washington, D. C., Series 1929, No. 21, L. F. Gieseker, E. R. Morris, A. T. Strahorn, and C. B. Manifold.*

*"Soil Survey of The Lower Flathead Valley Area Montana," U. S. D. A., Washington, D. C., Series 1929, No. 22, William DeYoung and R. C. Roberts.*

*"Soil Survey of Montgomery County, North Carolina," U. S. D. A., Washington, D. C., Series 1930, No. 13, R. C. Jurney, and W. A. Davis.*

*"Soil Survey of Harlan County, Nebraska," U. S. D. A., Washington, D. C., Series 1930, No. 12, W. J. Moran, R. Covell, and B. J. Abashkin.*

*"Soil Survey of Delaware County, New York," U. S. D. A., Washington, D. C., Series 1930, No. 7, Clarence Lounsbury, P. D. Beers, F. B. Howe, E. E. Waite, C. S. Pearson, and C. H. Diebold.*

*"Soil Survey of Macon County, North Carolina," U. S. D. A., Washington, D. C., Series 1929, No. 16, R. E. Devereux, E. F. Goldston, and W. A. Davis.*

*"Soil Survey of Van Zandt County, Texas," U. S. D. A., Washington, D. C., Series 1928, No. 33, A. W. Goke, W. I. Watkins, E. N. Poulson, Z. C. Foster, E. G. Fitzpatrick, and W. J. Moran.*

*"Soil Survey of Brown County, Wisconsin," U. S. D. A., Washington, D. C., Series 1929, No. 17, A. C. Anderson, W. J. Geib, M. J. Edwards, M. B. Whitson, C. E. Born, and Harold Bandoli.*

*"Soil Survey of Hancock County, Iowa," U. S. D. A., Washington, D. C., Series 1930, No. 9, F. R. Lesh, T. H. Benton, and G. B. Killinger.*

*"Soil Survey of Guthrie County, Iowa," U. S. D. A., Washington, D. C., Series 1929, No. 15, C. L. Orrben, A. M. O'Neal, A. H. Hasty, and W. C. Boatright.*

*"Soil Survey of Eaton County, Michigan," U. S. D. A., Washington, D. C., Series 1930, No. 10, J. W. Moon, J. O. Veatch, C. H. Wonser, and R. E. Pasco.*

*"Soil Survey of Hitchcock County, Nebraska," U. S. D. A., Washington, D. C., Series 1930, No. 8, F. A. Hayes, W. J. Moran, S. R. Bacon, R. L. Gemmell, H. Otte, B. J. Abashkin, and E. A. Nieschmidt.*

## Crops

The extended drought throughout the Midwest undoubtedly has raised the question of the practicability of irrigation in many sections and for many crops where it has not been considered before. Iowa's new Bulletin No. 308, "Irrigation for Vegetable Crops in Iowa," by A. T. Erwin and E. S. Haber, will throw some light on the subject. Interested growers will find the publication of value in determining whether there is profit in controlling the moisture supply of their crops.

*"Report of the Director for the Year Ending October 31, 1933," Agr. Exp. Sta., New Haven, Conn., Bul. 357, Jan., 1934, W. L. Slate.*

*"Celery Production in Colorado," Agr. Exp. Sta., Fort Collins, Colo., Bul. 407, Feb., 1934, A. M. Binkley.*

*"Flower Gardens for Colorado," Agr. Exp. Sta., Fort Collins, Colo., Bul. 408, Mar., 1934, George A. Beach.*

*"A Preliminary Study of the Fruiting Habit of the Black Raspberry," Agr. Exp. Sta., Fort Collins, Colo., Tech. Bul. 8, Mar., 1934, George A. Beach.*

*"Bright Tobacco Culture in the Coastal Plain of Georgia," Ga. Coastal Plain Exp. Sta., Tifton, Ga., Bul. 22, Nov., 1933, J. M. Carr.*

*"Report of the Director for the Year Ending June 30, 1933," Agr. Exp. Sta., Lafayette, Ind., J. H. Skinner and H. J. Reed.*

*"Alfalfa for Indiana Farms," Agr. Exp. Sta., Lafayette, Ind., Ext. Leaf, No. 158 (Rep.), Apr., 1934.*

*"Soybeans in Iowa Farming," Agr. Exp. Sta., Ames, Iowa, Bul. 309, Apr., 1934, Albert Mighell, H. D. Hughes, and F. S. Wilkins.*

*"Flax Production in Kansas," Agr. Exp. Sta., Manhattan, Kan., Cir. 173, Jan., 1934, I. K. Landon.*

*"Corn Culture," Agr. Exp. Sta., Baton Rouge, La., Cir. 8, Mar., 1934, H. B. Brown.*

*"Summary Report of Progress, 1933," Agr. Exp. Sta., Orono, Me., Bul. 369, Dec., 1933.*

*"Isolated Tuber-unit Seed Plots for the Control of Potato Virus Diseases and Blackleg in Northern Maine," Agr. Exp. Sta., Orono, Me., Bul. 370, Jan., 1934, E. S. Schultz, Reiner Bonde, and W. P. Raleigh.*

*"Annual Report for the Fiscal Year Ending November 30, 1933," Agr. Exp. Sta., Amherst, Mass., Bul. 305, Mar., 1934, F. J. Sievers.*

*"Massachusetts Pastures," Agr. Exp. Sta., Amherst, Mass., Ext. Leaf. 150, Nov., 1933, Ralph W. Donaldson.*

*"Seed Inspection," Agr. Exp. Sta., Amherst, Mass., Bul. 72, Control Series, Feb., 1934, F. A. McLaughlin and Margaret E. Nagle.*

*"Gladiolus Culture, Insects, and Diseases," Agr. Exp. Sta., East Lansing, Mich., Cir. Bul. 149, Jan., 1934, P. R. Krone, E. I. McDaniel, and Ray Nelson.*

*"Orchard Grass in Missouri," Agr. Exp. Sta., Columbia, Mo., Cir. 173, Feb., 1934, C. A. Helm.*

*"Tomato Culture in Missouri," Agr. Exp. Sta., Columbus, Mo., Cir. 173, Feb., 1934, E. J. Allen and T. J. Talbert.*

*"The Soybean Crop in Missouri," Agr. Exp. Sta., Columbia, Mo., Cir. 174, Mar., 1934, B. M. King.*

*"Management of Bluegrass Pastures in Missouri," Agr. Exp. Sta., Columbia, Mo., Cir. 175, Mar., 1934, E. Marion Brown and James E. Comfort.*

*"Strawberry Growing in Missouri," Agr. Exp. Sta., Columbia, Mo., Cir. 176, Apr., 1934, T. J. Talbert.*

*"Flax, A New Cash Grain Crop for New Jersey," Agr. Exp. Sta., New Brunswick, N. J., Cir. 295, Mar., 1934, Howard B. Sprague.*

*"Growing Flax in New Jersey," Agr. Exp. Sta., New Brunswick, N. J., Cir. 305, Mar., 1934, Howard B. Sprague.*

*"Leaf Scorch of Shade Trees," Agr. Exp. Sta., New Brunswick, N. J., Cir. 310, Apr., 1934.*

*"Forty-Fourth Annual Report, 1932-1933," Agr. Exp. Sta., State College, N. M., Fabian Garcia.*

*"Strawberries," Agr. Exp. Sta., Geneva, N. Y., Cir. 31 (Rep.), Aug. 1, 1933, George L. Slate.*

*"Longevity of Rhizobium Japonicum in Relation to Its Symbiont on the Soil," Agr. Exp. Sta., Ithaca, N. Y., Mem. 162, Apr., 1934, J. K. Wilson.*

*"Spinning Quality of Cotton in Relation to Seed Purity and Care of Seed-Stocks," Agr. Exp. Sta., State College Station, Raleigh, N. C., Tech. Bul. 45, Mar., 1934, J. H. Moore and R. T. Stutts.*

*"Fifty-Second Annual Report, 1932-1933," Agr. Exp. Sta., Wooster, Ohio, Bul. 532, Feb., 1934, C. G. Williams.*

*"Potato Gowing in Ohio," Agr. Exp. Sta., Columbus, Ohio, Ext. Bul. 86 (Rev.), Feb., 1934, E. B. Tussing.*

*"The Bimonthly Bulletin," Agr. Exp. Sta., Wooster, Ohio, Vol. XIX, No. 167, Mar.-Apr., 1934.*

*"Virginia Pine in Pennsylvania," Agr. Exp. Sta., State College, Pa., Bul. 300, Nov., 1933, A. C. McIntyre.*

*"Forty-Sixth Annual Report, 1934," Agr. Exp. Sta., Kingston, R. I., Contribution 449, Apr., 1934, B. E. Gilbert.*

*"The Influence of Crop Plants on Those Which Follow. IV," Agr. Exp. Sta., Kingston, R. I., Bul. 243, Jan., 1934, T. E. Odland, John B. Smith, and S. C. Damon.*

*"Improved Methods of Utilizing the Magnolia Fig," Agr. Exp. Sta., College Station, Tex., Bul. 483, Dec., 1933, H. M. Reed.*

*"Department of Agriculture Immigration of Virginia," Richmond, Va., Buls. 312, 313, 314, and 315, Feb., Mar., Apr., and May, 1934.*

*"Olive Growing in the Southwestern United States," U. S. D. A., Washington, D. C., Farmers' Bul. 1249 (Rev.), Aug., 1933, C. F. Kinman.*

*"Important Sugar-Beet By-Products and Their Utilization," U. S. D. A., Washington, D. C., Farmers' Bul. 1718, Jan., 1934, A. W. Skuderna and E. W. Sheets.*

*"Feeding and Management Investigations at the United States Dairy Experiment Station at Beltsville, Md.; 1932 Report," U. S. D. A., Washington, D. C., Misc. Pub. 179, Dec., 1933, T. E. Woodward, J. B. Shepherd, and R. R. Graves.*

*"Alfalfa in Western Washington," Agr. Exp. Sta., Pullman, Wash., Ext. Cir. 18 (Rep.), Mar., 1934, Leonard Hegnauer.*

*"Commercial Potato Production in West Virginia," Agr. Exp. Sta., Morgantown, W. Va., Cir. 63, May, 1933, K. C. Westover.*

*"Strawberries for West Virginia Farms," Agr. Exp. Sta., Morgantown, W. Va., Cir. 64, May, 1933, W. H. Childs.*

*"Factors Influencing the Palatability of Hay," Agr. Exp. Sta., Laramie, Wyo., Bul. 199, Nov., 1933, H. S. Willard.*

## Economics

*"Production Costs and Returns from Major Salt River Valley Field Crops, 1928-1930," Agr. Exp. Sta., Tucson, Ariz., Bul. 146, Mar., 1934, R. L. Matlock and S. P. Clark.*

*"Prospects for Agricultural Recovery—VI. Farm Mortgage Policy," Agr. Exp. Sta., Ames, Iowa, Bul. 315, Apr., 1934, William G. Murray.*

*"Farm Organization Practices and Costs of Producing Crops in the Middle Rio Grande Conservancy District of New Mexico," Agr. Exp. Sta., State College, N. M., Bul. 215, June, 1933, A. L. Walker and P. W. Cockerill.*

*"An Economic Study of the Marketing of Certain Perishable Farm Products in Albany, New York," Agr. Exp. Sta., Ithaca, N. Y., Bul. 585, Feb., 1934, Wilbert C. Hopper.*

*"The Cost of Producing Milk in Rhode Island," Agr. Exp. Sta., Kingston, R. I., Bul. 241, Jan., 1934, J. L. Tennant.*

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## A NEW BOOK ON FERTILIZERS

Considering the importance of fertilizers in a large portion of the agriculture of the United States, there are comparatively few books covering the subject in a satisfactory manner. Thus,

"Commercial Fertilizers" by Gilbeart H. Collings (*P. Blakiston's Son and Company, Inc., Philadelphia,* 1934, $3.25) is a welcome addition to this uncrowded field.

After a general introductory chapter, the book can be divided into two large sub-divisions. The first division describes the materials used as fertilizer, while the second division gives principles on the use of fertilizers. Separate chapters are devoted to nitrate of soda; sulphate of ammonia; synthetic nitrogenous fertilizers; organic nitrogenous fertilizers; rock phosphate; superphosphate; other phosphates, such as bone and basic slag; European potash salts; other potash salts; and the so-called minor elements. When discussing each fertilizer material, the source, processing or manufacturing, properties and use of the material are included. This arrangement is of great help when using the book for reference purposes. The new fertilizer materials are well covered.

The remainder of the book is devoted to consideration of the purchase, use, and application of fertilizers. The author, from his long experience with fertilizers, has wisely given principles on their use, rather than a number of specific recommendations or rules of thumb. For this reason the information given is not limited in its applicability to any locality, but is adapted to the highly diversified conditions of the fertilizer-using sections. Worthy of mention is a good bibliography, an aid to those wishing further details on some particular subject than can be included in a book of this nature.

The author states he wrote the book as a textbook on commercial fertilizers for agricultural colleges, and it should serve this purpose admirably. However, it also will serve as a handy reference book for county agents, fertilizer manufacturers, and others concerned with fertilizer problems.

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# Old Soils Need Potash

(*From page 9*)

fections as wilt and rust diseases.

Available potash sometimes is reduced so low that a deficiency fixation by the soil occurs when potash fertilizer is used. Some of the potash so absorbed or fixed may fail to become readily available to crops. The availability of potash fertilizer in poor soils may be safeguarded by concentrating the application in a small area near the plants. On good soils that have been properly maintained, potash unused by the crop and fixed by the soil remains in a form available to succeeding crops. Soil exhaustion should not be permitted to reach so advanced a stage that available nutrients nearly disappear.

Changes which occur in the supply of available potash are pretty well indicated by what occurs within the plant. As long as available potash is abundant, large quantities are absorbed by the growing plant. In fertile virgin soils "luxury" consumption occurs. Crop removal exhausts the supply the more rapidly because of excessive absorption. As the available supply is reduced, "luxury" consumption disappears, and finally there is no longer sufficient to meet the needs for growth. The diminished supply is indicated by the low analysis in the plant sap.

When available potash is sufficiently reduced, abnormalities of plant development may appear. Every actively growing point must have potash. The plant partially accommodates itself to a reduced supply, by re-

ducing the number of growing points. Roots are less profusely branched. The few roots that develop are long and slender and incapable of rendering the crop drouth-resistant. Sweet potatoes develop strings instead of thick, fleshy potatoes. Irish potatoes are poorly shaped, and less marketable. The leaves are reduced in size and number, and photosynthetic activity slows appreciably. Even when disease does not appear, yields and quality are disappointing.

### *Becoming Potash-Minded*

Appreciation of the danger of potash deficiency is apparently increasing. This is indicated in the extended use of potash fertilizers. Orchardists and small-fruit growers have found potash helpful in controlling certain diseases and disturbances of malnutrition. Nearly all vegetable growers use complete fertilizers carrying appreciable quantities of potash. Many general farmers include the use of complete fertilizer as a part of their system of soil improvement. The use of potash and phosphate has proven especially helpful in restoring old pastures. In the South and East where soils have been farmed longest and most severely exhausted, potash has become increasingly important. Results from the renowned Rothamsted experiments in England indicate that the use of 200 pounds of potassium sulfate per acre with nitrogen and phosphorus has added eight bushels to the yield of wheat (an increase of 42 per cent) over a period of 90 years.

As the "per acre" expenditure for fertilizer increases, the inclusion of potash becomes more urgent. Additional expenditures for phosphorus, nitrogen, or lime are of little help when potash is deficient. Likewise the use of potash shows little return so long as phosphorus or some other important nutrient is seriously deficient. The heaviest users of fertilizer include potash, both perhaps to provide an important nutrient, and to guard against a gradual but nevertheless certain exhaustion of the soil supply.

The crop-producing power of two soils of similar physicial constitution have been compared. One was an old, badly leached soil, acid in reaction. The other was nearly neutral and unleached. The old, leached soil showed only 27 per cent as high productive capacity as the latter. The leached soil contained 20 per cent as much available calcium and 42 per cent as much available potash as the good soil. The availability of other nutrients was reduced to a low level. There is ample reason for the low production of the poor soil. Old soils need complete fertilization to bring them back to high production.

### *Maintains Fertility*

With good methods of farming, soil exhaustion can be avoided. Experienced gardeners and truck farmers do not exhaust the soil, even with the removal of two and three crops per season. They fertilize liberally and completely. The general farmer cannot afford nor does he need as much fertilizer as the truck grower. He can, however, conserve fertility by starting a fertilizer program before the soil is exhausted. The oldest experiment fields in the world indicate that the use of mineral fertilizers and crop rotation will maintain fertility indefinitely. Good farmers find the same method effective and better economy than restoring "run-down" soils.

Soil exhaustion is slow and insidious. Soil building must likewise come gradually. An effective method of restoring old soils is the growing of legume crops. Lime, phosphate, potash, and sometimes nitrogen or manure may be needed to grow a luxuriant legume on run-down land. Expensive yes, but the end justifies the means. Either the land must be made productive, or taken out of cultivation.

Fortunate is the farmer who can introduce a specialized crop of high acre-value into his rotation. For crops

of high value the farmer is willing to prepare his land well. The grower cannot afford to fertilize high-value crops other than liberally and completely. There is profit in the crop. Other crops of the rotation less able to stand the expenditure then give larger returns, because the soil has been made rich.

In soil management as in other things prevention rather than cure is desirable. Rotation with soil-building sods, the return of manure, the frequent renewal of lost bases, both calcium and potassium on old soils, and the use of phosphorus and nitrogen help prevent soil depletion and low production. Soils that are kept productive do not require as heavy expenditures in labor, management, and fertilizers for similar returns. There is profit in farming good soil, whereas poor soils contribute to overproduction, with profit to nobody.

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# The Inquiring Mind

(*From page* 12)

Henry died on July 4, 1904.

Botany was Dean Henry's specialty, and in his declining years again received his attention. His favorite subject, however, had to be relegated to other scientists when the great task of establishing the agricultural college and experiment station more than occupied his time and talents. Almost every branch of agriculture had to be studied, and, indeed, mastered. That Dean Henry did with remarkable success, and soon initiated research work in the various departments of agricultural science. William Trelease, B.S., who was later Director of the Botanic Gardens at St. Louis, Missouri, was appointed Professor of Botany, and Henry P. Armsby, Ph.D., who afterward became Director of the Pennsylvania Agricultural Experiment Station, was made Professor of Agricultural Chemistry. These appointments, and the enlargement of the scope of the Agricultural College, were made possible by the increased revenue voted by the State Legislature of 1883.

From the first, Dean Henry associated with himself men who became leaders in their respective fields. Of these may be mentioned W. W. Daniells, S. M. Babcock, and F. W. Woll, in agricultural chemistry; E. S. Goff, in horticulture; F. H. King, in soils and physics; Harry L. Russell, in agricultural bacteriology; E. H. Farrington, in dairying; Ransom A. Moore, in agronomy; John A. Craig and W. L. Carlyle, in animal husbandry; A. R. Whitson, in soils; and, later, many other notable teachers and research workers who brought fame to the institution.

The most notable achievement of the Experiment Station during the regime of Dean Henry was the perfecting of the milk test by Dr. S. M. Babcock. Its discovery was announced in Bulletin No. 24, issued by the Station in July 1890. The test consisted of an accurate method of measuring the fat content of milk by a simple process which readily could be practiced by expert dairymen. It followed the development of the practical method of separating the cream from bulk raw milk, by the application of centrifugal force, perfected by Dr. De Laval of Sweden. These two discoveries practically revolutionized commerical dairying and buttermaking. The Babcock test also greatly benefited the cheesemaking industry. Dean Henry reported that over 60,000 copies of the bulletin

and reports describing the Babcock test were issued by the Station. Dr. Babcock refused to patent his method, although profits from it might have made him a multimillionaire. In 1899, the State Legislature voted him a large bronze commemorative medal, made in London, England, as an expression of appreciation, and it was formally presented in 1901.

### *Other Achievements*

Another great achievement occurring during the Henry administration, was the introduction of tuberculin testing for bovine tuberculosis, and the inauguration of a campaign against the disease which was destined eventually to rid the State of Wisconsin of that malady and incite other States to strive in like manner for its eradication. The credit of this great achievement belongs to Dr. Harry Luman Russell, bacteriologist, who succeeded Dean Henry as Dean and Director of the Wisconsin College of Agriculture and Experiment Station in 1907. He had done post-graduate work under Robert Koch, the famous German bacteriologist, and had brought to Wisconsin some tuberculin from the laboratory of that scientist. With it he tested the Wisconsin Experiment Station dairy herd and found 20 of its 30 animals tuberculous. Then he began active propaganda work against the disease, demonstrated the test in many centers, educated testers, wrote and lectured on the subject, and in the face of opposition, won the battle, established the test as a standard and reliable method of detecting the disease, saw the malady banished from many a herd and district and eventually practically eradicated in his home State, Wisconsin.

When Dean Henry started the Short Course in Agriculture in 1885, with an enrollment of 18 regular and 4 special students, the venture was considered by many as a radical and impracticable experiment; but it grew to be one of the most important educational factors in agriculture. It was given impetus and brought to its full measure of efficiency and power by Professor Ransom A. Moore, who was appointed assistant to Dean Henry in 1895 and became famous as an agronomist and also as the originator of the great Agricultural Experiment Association of Wisconsin for the propagation and dissemination of pure-bred seeds. The Short Course gradually grew in popularity until more than 6,500 young men from Wisconsin farms and elsewhere had benefited by its tuition. The influence of the Course upon the agriculture of the State is inestimable, and other States have had like results from similar courses suggested by that of Wisconsin. Dean Henry also started the Short Course in Dairying, in 1890, soon after the perfection of the Babcock test for butterfat, and it has attracted and trained a host of students in practical and scientific dairy methods, not only from Wisconsin, but from many other States and from some foreign countries.

In 1885, the Legislature, at the request of Dean Henry and other progressive agriculturists, including Hiram Smith, W. D. Hoard, and W. H. Morrison, enacted a law establishing the Farmers Institutes which, in Wisconsin and other States, soon became a power for good in bringing to farmers the valuable facts disclosed by the experiments conducted at the Experiment Station.

Dean Henry was also most influential in securing the establishment of the parcel post. Toward that end he organized a successful publicity campaign for Parcel Post Day, which he named as March 18, 1912, and through letters and personal contact secured the active cooperation of the agricultural press in behalf of the project.

### *"Feeds and Feeding"*

It was in 1898, that Dean Henry published "Feeds and Feeding," a Handbook for the "Student and Stockman," a volume of 670 pages which was destined to revolutionize the feed-

ing of domesticated animals and become the most widely used text-book on the subject in the agricultural schools and veterinary colleges of America and several foreign countries. The many later editions of the book were prepared and brought up to date with Professor F. B. Morrison as joint author. The preparation of the material for the initial edition was a heroic task to which the author brought his most earnest attention. Every sentence composing it had to be as perfect as possible, and its diction would serve today as a model for students in English composition. He was also a valued contributor to the agricultural press and a popular and instructive lecturer upon agricultural subjects, at farmers' institutes, and at conventions of both scientists and practical farmers.

### *"Dean of Deans"*

Recognized as a great administrator, Dean Henry became generally known as the "dean of deans." Better yet, by those who knew him well, he still is affectionately referred to as "Dear Dean Henry," and is spoken of with respect on the 180,000 farms of Wisconsin.

Looking back, we remember that Dean Henry achieved his first triumph and widest fame by the publication of the results of his many and carefully conducted experiments in the feeding of swine. He began and waged an active campaign, in the early eighties, against the prevailing practice of stuffing pigs on corn until the animals became veritable "lard hogs" and almost devoid of the Irishman's "streak of fat and streak of lean." His illustrated bulletins, some with colored plates, showed sections of carcasses of corn-fed hogs, and those matured on a ration containing adequate quantities of protein and bone-building elements. His tests of the strength of the thigh bones of hogs so fed were a revelation to breeders.

In the first Wisconsin trial, as a table in his bulletin showed, the bones of corn-fed pigs broke at an average pressure of 380 lbs. for each 100 lbs. of carcass, while those of pigs fed dried milk, dried blood, and middlings broke at about 500 lbs., a difference of about 32 per cent in favor of the pigs getting the ration rich in crude protein. Analyses of the organs and parts of the pigs used in the second Wisconsin trial showed, further, that the corn-fed pigs had proportionately less dry matter in their blood and kidneys and a smaller amount of dry, lean meat tissue than those on the narrow ration. The results of these and further experiments conducted by Dean Henry, when published and illustrated in the live stock and farm press of the country, had, we think, a greater influence in bettering the feeding methods of swine breeders throughout the country, improving the quality of pork products, strengthening hogs constitutionally, and lessening losses from rickets and paralysis, than anything of the sort that had been accomplished by any other scientist in those early days.

### *Believed in Future*

"Dean Henry was a great believer in the future of agriculture," once said the editor of Hoard's Dairyman, and added, "He was one of the earliest speakers for cooperation, often citing the farmers of Denmark as an example for American farmers to follow. His vision was country and world-wide, and he saw the importance of having a satisfied, happy farm population. His plea was ever for a 'strong, virile, agricultural people, as a rock foundation of the nation,' for, as he said, the one priceless thing in any truly great nation is the character of its people." Another notable saying of Dean Henry was: 'The farmer who simply goes out to plow and work is not going to get any fun out of it, but there is a good chance for fun in farm life. Get enthusiastic over your work and you will begin to see farm life in a new and brighter light'."

Always he preached integrity, hon-

esty, industry, and thrift to his students and farm audiences. On a wall of a room in the Agricultural College he placed a huge sheet of brown paper on which he had printed words to this effect: "The nickel you needlessly spend on a street car ride or cigar would buy a tract of good farm land in Northern Wisconsin as large as this sheet or more. Save your nickels and buy land!"

Often farm boys might be seen contemplatively studying that poster and seriously discussing its moral. No doubt such lessons by Dean Henry set many a young man to thinking right and acting wisely. He was a sound thinker and wise counsellor. Professor R. A. Moore, who worked intimately with him for many years, once said, "None of us are ever 100 per cent perfect, but I don't think there ever was a man in the State of Wisconsin who was right as many times out of a hundred as he would be."

He was a man of wonderful executive ability, and could quickly and correctly "size up" a puzzling situation. Men who did things in a conservative way earned his esteem. Undemonstrative himself, his love for farm boys was far greater and deeper than they knew or suspected. One of his admirable traits was his remarkable ability to work well and successfully with the State Legislature. Its members came to understand him well and to recognize the unselfishness and saneness of his requests; therefore they appropriated the building funds he asked of them. He was strictly honest in all of his dealings and a great admirer of men who were truthful and honest like himself. Although thrifty by nature and practice, he was always ready and willing to spend money when he saw that it would be of great benefit to the farmers.

Of intensely nervous temperament, his work took heavy toll of his strength and at length broke down his health, so that he had to retire at the early age of 57 years. But he had accomplished wonders during his 27 years of service and richly deserved the rest which restored in some measure his waning strength. In his declining days, spent in San Diego, California, botany, his first love, became again his entrancing study and never-failing job. Daily, among the beautiful trees, shrubs, and flowers of Balboa Park, he passed many pleasant hours, and there and in the museum, delighted visitors by his instructive talks and demonstrations. A charming conversationist, always he had held his audiences spellbound. His great spirit passed to the Beyond in the environment he loved.

Now he rests from his labors where "The Tree of Life" has given him a new and better embodiment in the "Home over There."

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# How They Become Corn Champions

(*From page* 8)

in soil improvement, as they pay especially well.

Since his farm is small, large yields of corn have been a necessity in order to meet his feed requirements. He follows the practice of a good crop rotation, corn, wheat, and clover. Not more acres in corn, but more corn per acre is his motto.

Although he gave his first attention to his soil improvement program, he has been equally active in the adoption of other good corn-growing practices. He used field-selected Johnson County White seed corn, which he has grown and selected on his farm for a

number of years. This variety is highly productive, although too late for Central Indiana and too large for his section unless the soil has been made very productive.

He stores his field-selected seed as soon as it is gathered and dries it out thoroughly before freezing weather sets in. In the spring it is rag-doll tested. These steps he considers vital to securing a good stand of vigorous growing plants.

The land was plowed from May 10 to 20, double-disced and harrowed, and planted on May 29-30. The corn was drilled thickly in rows 38 inches apart. The corn was cultivated five times, shallow. On account of the dry weather a drag was run between the rows after the corn was too large to cultivate. He is quite sure his yield was cut several bushels per acre by the drouth. His yield was based on actual moisture content calculated to 17.5 per cent moisture, the grade for Number 3 corn.

Following this program has made it possible for A. C. Brown to produce yields of more than 100 bushels per acre four times in the last seven years. His average yield for the seven-year period on the basis of his five-acre plot has averaged well over 100 bushels.

Mr. Brown has attended the Agricultural Conference at Purdue for the past three years and from the work in the corn-judging school has become interested in exhibiting corn. He has shown at and attended the International Grain and Hay Show as well as the State Show. Through his contacts at these shows and at farmers' meetings, he has added to his store of knowledge in growing corn.

At the last Agricultural Conference, he was crowned as the Five-Acre Corn King of the State of Indiana and given a certificate of this award by President E. C. Elliott of Purdue University. We believe his achievement as a corn grower, operating under severe soil handicaps and discouraging agricultural prices, should offer encouragement to corn growers everywhere.

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# More About Less Milk

(*From page 6*)

in butter patties at too many restaurants. The taste tells—on the lining of your mouth. You reach for a chloride of lime chaser after each swallow. Another expensive surplus is in the form of oily, shoe-leather cheese and inflated ice cream that won't melt in the sun. But just try to eliminate that kind of surplus and you'll hear from the personal rights contingents.

In any other market where perishables are sold for eating purposes, a chap who tries to unload super-aged and loud-smelling vegetable offal on the suffering public gets a smack in the lower posterior. His stuff is sorted and all the unfit rubbish is dumped, or else he takes it home to feed the controlled hogs. The rejected leftovers are not called "surplus." But in too many of our milk markets any kind of white liquid is accepted and chucked into the same kettle with the bona fide fruit of the mammary glands of self-respecting cows.

Which means that if we could install honest, supervised bookkeeping records on the real milk which some dealers report as surplus, and then forever abolish the putrid article from interstate commerce, we would be half way on the glory road.

Furthermore, it is the surplus men

behind the cows as much as surplus cows or surplus milk that make the going rough. The inalienable right of dumb bunnies and microbe breeders to pick dairy cow management as a profession is not properly a constitutional guarantee along with free speech and cheap liquor. Anybody who fetches me a nifty code which removes such surplus producers from the milk stools of America will get a blowhard article written up for him, and maybe after that a "nick" in the stall of fame.

Another thing we need to do is to have a bigger national viewpoint on the cow-pailing trade than we have had before. The only notable success in that line so far has been the much-mentioned holding company game. The fellows who fork the silage and sprinkle incense on the mangers are widely disunited.

THIS fact is proveñ by the complimentary things they say about Wisconsin cream Way Down East and the flattering references to Yankee Notions made by the Cornhuskers. This has gone too far to stop by one or two tut-tuts or even an embargo. Who cares a hoopenholler what region has a deficit. I thought we all had it. Why blame each other for aiming at the high dollar on the wing over the broken back of a willing but misguided cow? The outlook for more favorable tariff treaties with other nations is far better at this writing than to obtain a tariff truce right at home between dairymen—and others. If somebody will shuffle up with a national idea for a dairy union that works even 33 per cent half of the time, the services of a noted scribe are his for promotion purposes. Dairymen will brag about the growth of extensive interstate cattle transfers and then proceed to put regulations into effect to stop the free flow of milk from the cows they just sold.

Everybody says milk is indispensable. Hence like sunshine, air, and water, also indispensable, it should be pretty nearly free, according to the usual logic. The dairyman is sentimental that way too. He has a complex. It tells him that he is under moral obligation to provide this indispensable food as close to nothing as he can under a light mortgage. To do this job pluperfect and beyond criticism by social experts, the perplexed dairyman, sunk in his sentimental reveries, refrains from adding to his overhead labor costs by working the dickens out of his wife and kids. If it were not for the selfish middlemen, the dairyman could supply fresh milk "100 per cent rat power" (vitamin jargon) six quarts for a nickel, with rain checks thrown in. When the dairyman is good and groggy with this brand of sentiment, the ladies' survey society and the milk dealers' amalgamation push his price down another notch and he thinks production control is beeswax. Why control production when the "peepul" are clamoring for custard? Set the alarm clock ahead two hours, put a chattel on the cows, buy the wife a new pair of overalls, and give the tenements a treat! It's better to lose the farm than to fail in a social duty.

So in approaching a conclusion:
Lives of dairymen remind us
We can make our lives sublime
Feeding N. R. A. cost rations,
Milk a gallon for a dime.

Tell me not in mournful numbers
Life is but an empty scream,
And the base milk of our slumbers
Turns to butter and ice cream.

Rather let's be up and doing,
Use a quota or a code,
Or make cows a public service—
Any plan, so we unload!

This department is now open for further consultation with members of the industry who may still desire to submit a comprehensive and practical way to dehorn the dairy dilemma without injury to consumers or to the milk-wagon drivers' union.

## HONEYMOON

There has been a big family row; the police had been called; Mr. Blank was hauled into police court for beating his wife. The magistrate rebuked him severely.

"You ought to be ashamed of yourself," his honor began, "assaulting your wife like that. I never saw a nastier black eye. Do you know of any reason why I should not send you to prison?"

"If you do," answered the defendant, "it will break up our honeymoon."

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Sandy: "What's the trouble, Jock? You seem so sad."

Jock: " 'Tis enough to make one sad. I'm on my honeymoon and could-no-ford to bring my wife."

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A bachelor is a man who never makes the same mistake once.

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DeWitt Wing tells about the young woman who had two beaux and couldn't make up her mind which one to marry. When questioned, she answered: "Sometimes I like one as much as the other and more, and sometimes I'd as lief marry one as the other and rather."

---

"Why was Adam like a radio?"

"Because they took part of him and made a loud-speaker."

## TAKE YOUR CHOICE

He: "Will you marry me, honeybunch?"

She: "Certainly. Trial, companionate, or fight-to-a-finish?"

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"Gal," pleaded a colored suitor at the conclusion of an impassioned proposal, "ef you' don' marry me Ah'll go crazy!"

"Humph!" sniffed the unmoved belle. "An' who's gwine fin' it out?"

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She—"Henry, dear, we have been going together now for more than ten years. Don't you think we ought to get married?"

He—"Yes, you're right—but who'll have us?"

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Mrs. Nagger—"I suppose if I were to die tomorrow, you'd marry some other woman immediately."

Mr. Nagger—"Not right away. I'd take a little rest first."

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"I just read where a flapper presented her 85-year-old hubby with a baby boy. What do you think of that?"

"The same as you do."

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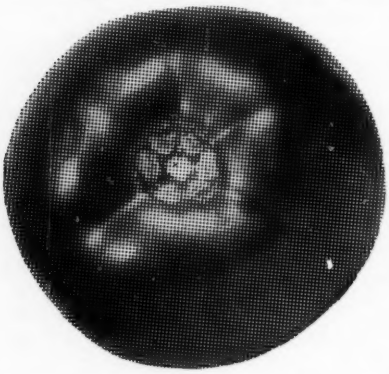
## SNAPPY COMEBACK

Notice: From this date, I will not be responsible for any debts or obligations made by my wife.—*G.A.F.*

Notice: I have not purchased anything for cash or for credit since I became Mrs. G.A.F.—*Mrs. G.A.F.*

# *Fill out your tomatoes*
## FIRM • MEATY • ROUND • RED



**Potash-fed** *tomatoes are well-filled-out and meaty, with thick walls causing firmness. They have excellent canning and shipping quality.*

**Potash-hungry** *tomatoes often crack around the stems and are useless for shipping. Note the thin walls and air spaces due to poor filling out.*

LEADING tomato growers know that it pays to use a high-potash fertilizer. This greatly increases the yields of No. 1 tomatoes, reducing the cat-faces, puffs and small, poorly colored fruits. It reduces cracking, gives more good red color and thickens walls, making the fruit firm, well-filled-out and meaty. Potash Pays!

**N. V. POTASH EXPORT MY., Inc., 19 West 44th Street, NEW YORK**

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